

Remarks

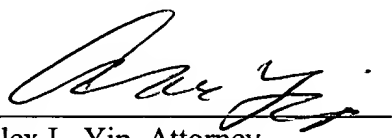
The present application is a continuation of application Serial No. 08/904,855, filed on August 1, 1997 ("the '855 parent application"). The specification has been amended to reflect such a priority claim. It has also been amended to correct typographical errors. Marked-up copies of pages 1, 13, 20 and 31 of the specification reflecting the amendments are enclosed. In addition, Figs. 14, 16 and 18 have been amended to correct typographical errors. Accordingly, marked-up copies of these figures with corrections in red are enclosed, along with a Letter to the Official Draftsperson.

Applicant has cancelled claims 1-20. Claims 21-59 have been added which are drawn to various aspects of the invention. These claims, as added, are patentable over prior art for reasons stated by the Examiner in the Notice of Allowability in the '855 parent application. Allowance of the present application is thus earnestly solicited.

In addition, applicant brings to the Examiner's attention the references listed on the attached Form PTO-1449 (12 pages). Pursuant to 37 C.F.R. 1.98(d), copies of these references are not enclosed as they were previously cited by or transmitted to the U.S. Patent and Trademark Office in the '855 parent application. It is respectfully requested that the listed references be made of record in the present application.

Respectfully,

Michael L. Obradovich

By 
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Date: August 6, 2001
Enclosures

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CENTRALIZED CONTROL AND
MANAGEMENT SYSTEM FOR AUTOMOBILES

This application is a continuation of application Serial No. 08/904,855, filed on August 1, 1997.
Statement of Related Applications

The present application is related to copending,
5 commonly assigned U.S. Patent ~~Application Serial No. 6,009,355.~~
~~08/789,934, entitled "Multimedia Information and Control~~
~~System for Automobiles."~~

Field of the Invention

The invention relates generally to control and
10 management systems and, more particularly, to a system for
use in an automobile which facilitates the user's control
and management of various vehicle functions.

Background of the Invention

The concept of an automated highway system (AHS)
15 has been fervently pursued. Although the interpretation of
the AHS concept varies from one person to another, people
implementing the concept are incorporating more and more
technology into an automobile to improve its operations,
better its safety measures, and add conveniences to the
20 vehicle user.

A prevalent interpretation of the AHS concept is
hands-free driving. To that end, magnets have been buried
along an experimental automated highway, and automobiles
have been equipped with magnetometers to sense the magnets
25 to guide the moving vehicles, thereby obviating manual
steering. In another approach, an automobile is equipped
with a video system in which cameras monitor different
segments of the road ahead and feed images to on-board
computers that control steering, acceleration and braking of
30 the vehicle.

detected by processor 103, the user is elicited for information concerning the destination, any intermediate stops, etc. Such elicitation is realized by posing questions on display 205 and/or by uttering those questions using a synthesized voice through an audio output. The user then provides verbal responses thereto through an audio input. Relying on standard speech recognition circuitry in system 100, navigation system 329 recognizes and registers the responses. Using stored map information, system 329 then provides on display 205 a suggested route leading to the destination. Furthermore, based on the knowledge of the vehicle's instantaneous speeds and directions, system 329 is capable of verbally and visually directing the user to the destination.

Because of the limited capacity of the storage for the map information or because the map information needs to be updated from time to time, it will be appreciated that system 329 would instead obtain the necessary, latest map information from an on-line service through a cellular or wireless connection.

In addition to directing the user to a given destination, system 329 through processor 103 cooperates with weather system 332 and traffic system 336 to be described. In accordance with an aspect of the invention, systems 332 and 336 jointly ^{provide} ~~provides~~ on display 205 updates regarding traffic ^{congestion} ~~congestion~~, weather conditions, hazards, highway warnings along the route suggested by system 329.

Fig. 6 illustrates one such navigation screen on display 205. On this screen, indicator 450 marks the current position of the vehicle. The suggested route (shown in boldface) by navigation system 329 is numerically denoted 453. Traffic indicator 455 is provided by system 336 to

complete stop, automatic parking routine 500 stored in memory 107 is invoked. When instructed by this routine, which is depicted in Fig. 9, processor 103 causes display 205 to show thereon the positions of the surrounding objects
5 relative to the subject vehicle, as indicated at step 543.

At this point, the user may touch the screen of display 205 to define a parking space into which the vehicle is to be parked. In order to carry out parallel parking effectively, this parking space needs to be reasonably
10 suitable for the vehicle to be maneuvered into. Processor 103 at step 547 computes the coordinates defining the selected parking space. Knowing the respective coordinates of the subject vehicle, the surrounding objects and the parking space, processor 103 at step 551 determines the
15 instants at which and extents to which the vehicle is to be accelerated and decelerated in the ~~cause~~^{course} of the parking, and at step 553 the instants at which and extents to which the steering wheel is to be turned and returned. At step 555, processor 103 causes a computer simulation to be performed
20 using the speed and steering parameters just determined to verify that the automatic parking is feasible, without running into any surrounding objects. At that point, the user may depress ANIMATION key 219j to view on display 205 the simulation in which the subject vehicle moves into the
25 user defined parking space in an animated fashion. At step 559 processor 103 determines whether the vehicle can be properly parked under the above conditions. If processor 103 determines that the automatic parking is unrealizable, processor 103 informs the user of same, as indicated at step
30 563. In response, the user needs to select another parking space or may attempt to park the vehicle manually.

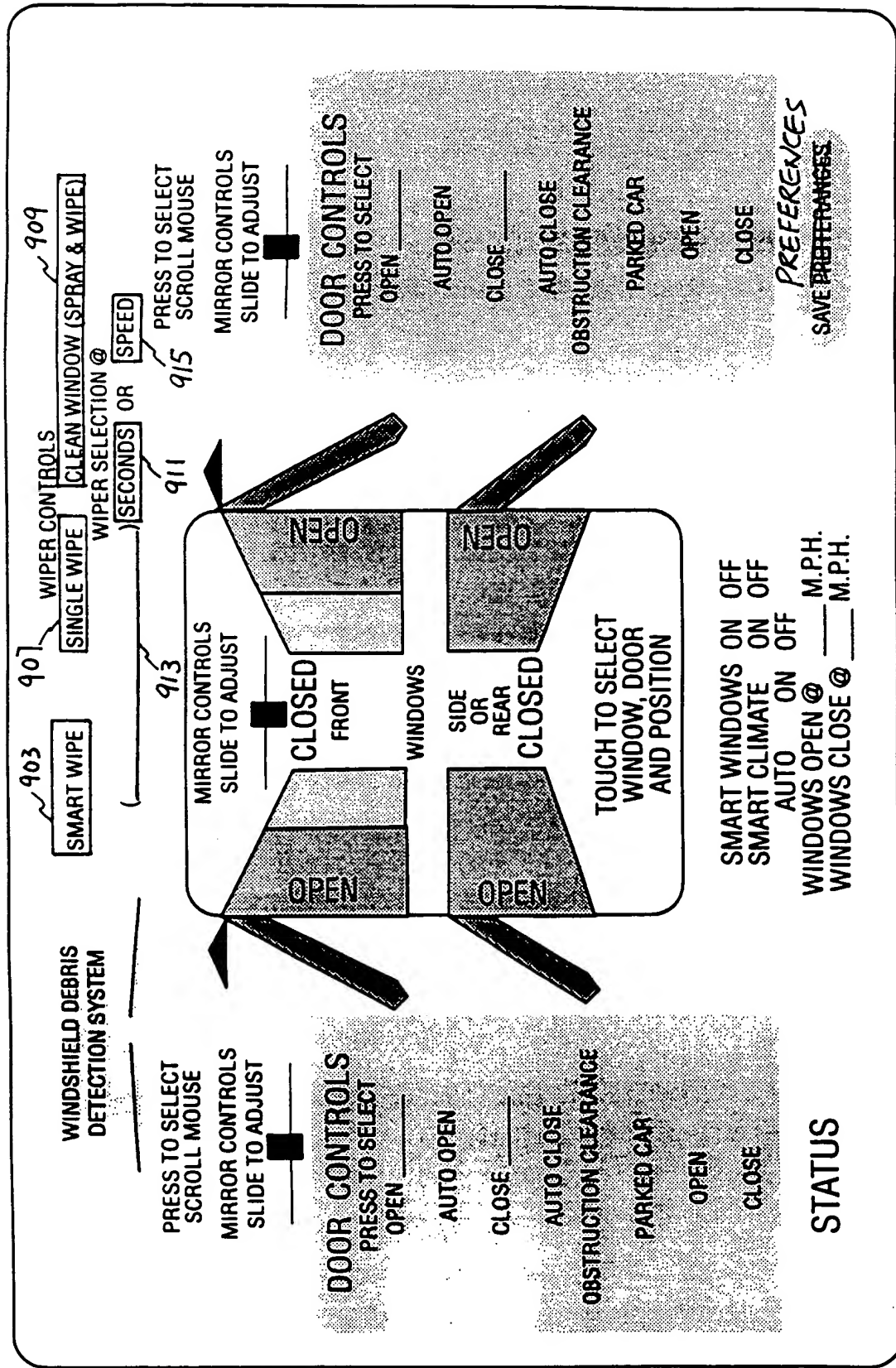
Otherwise if processor 103 determines that the

window, respectively. Indicators 821, 823, 825 and 827 on the hypotenuses of the respective triangles indicate the extents to which the corresponding windows are open. The user may touch the indicator on the screen to raise (or
5 lower) it along the hypotenuse. In response, processor 103 causes access control subsystem 139 to close (or open) the window accordingly. Alternatively, the user may operate indicator device 227 or 229 to point at one of the indicators and drag same along the hypotenuse to control the
10 corresponding window opening.

In addition, a SMART WINDOWS function on sub-screen 840 may be selected by touching ON option 842 on the screen or pointing and clicking at same. With the SMART WINDOWS function selected, for example, subsystem 139 causes
15 the windows to be ~~completely~~ ^{completely} closed upon a shut-off of the engine or an activation of air conditioning. When coupled with a SMART CLIMATE function to be described, the SMART WINDOWS function includes slightly opening selected windows to vent out excess heat prior to the user's arrival, thereby
20 pre-conditioning the vehicle. In addition, when an AUTO function on sub-screen 840 is selected, the user can specify the vehicle speed at which the driver side front window is made completely open or closed. By touching on the screen, or pointing and clicking at blank 845 or blank 850, choices
25 of speed are listed beneath the blank. For example, by selecting a zero speed for blank 845 ahead of a toll plaza, the window in question would be completely opened when the vehicle stops at a toll booth, thereby conveniently allowing the user to pay tolls.

30 The screen of Fig. 13 may also be invoked by depressing DOORS key 232b. Flaps 851, 853, 855 and 857 in Fig. 13 correspond to the driver side front door, driver

Fig. 14



SHIFT



QUICK TIPS

VOICE

VISUAL

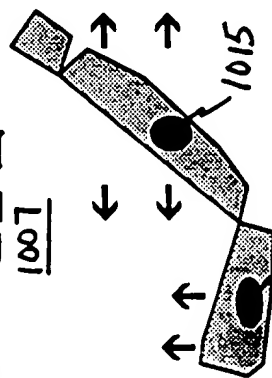
DRIVER PASSENGER 1 2 3 4

CLIMATE CONTROL SYSTEM

MOVE MOUSE OR
PRESS TO SELECT

SEAT CONTROLS

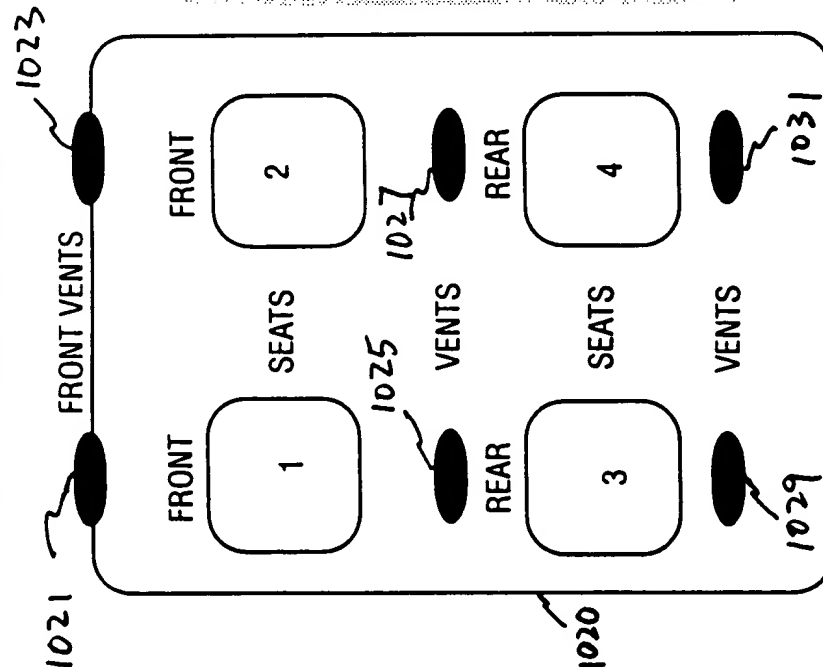
DRIVER 1005
PASSENGER 2 3 4
1007



SLIDE OR TOUCH TO ADJUST
ARM REST ADJUSTMENTS
SEAT HEATER ON OFF

SMART SEATS

CUSHION ADJUSTMENT
BACK SUPPORT ADJUSTMENT
AUTO TEMPERATURE CONTROL
MESSAGE ON OFF



FAN CONTROLS
VENT CONTROLS
MANUAL AIR VOLUME

WINDSHIELD DEFROST
REAR DEFROST
MIRROR DEFROST

SMART ALL AUTO DEFROST

TEMPERATURE SET
AIR RECIRCULATION
ACTIVE FILTER SYSTEM
CONTAMINATION ALERT

MORE INFORMATION
PREFERENCES
SAVE PREFERENCES

WARNING MESSAGES

RESTORE SETTINGS

SELECTIONS FROM
MENU OR SCREEN

QUICK TIP: PRESS
ANIMATION TO HEAR AND
SEE DEMO

ANIMATION VOICE

MORE INFORMATION

USER ICON

AUDIO SYSTEM RADIO CASSETTE CD VIDEO TV WEATHER BAND

RADIO STATIONS: XX LOS ANGELES, XX SANTA ANA STATIONS

X IRVINE

SAVE AREA SETTINGS YES NO

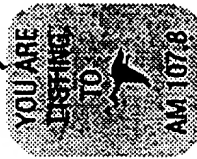
SELECTION BEING PLAYED:

XX SONG, XX ALBUM

1245

1273

1271



10 COUNTRY: FM 100.7 FM 102.9 AM 103.5

8 TALK / NEWS: AM 79.00 FM 89.9 FM 91.2 AM 98.6 AM 107.0

5 ROCK: FM 89.3 FM 98.1 AM 990 FM 102.7 FM 107.90

2 CLASSIC: FM 91.4 FM 96.4

SET FOR: DRIVER PASSENGER 1 2 3 4 5

ON OFF VOLUME CONTROL

FADER CONTROLS FRONT LEFT LEFT RIGHT

BASS TREBLE

OTHER 1247 1249

MOVE SPEAKERS FOR DESIRED SOUND

EFFECTS

PRESS EFFECT THEN SPEAKER

ROCK SURROUND MOVIE ETC.



QUICK TIP: SCROLL FOR
XX MORE STATIONS
USE MOUSE CONTROLS
OR PRESS TO SELECT

QUICK TIP: ANTENNA IS
ACTIVATED BY RADIO AND
TELEPHONE, BOTH MUST BE
SWITCHED OFF TO LOWER
ANTENNA

STEREO

SMART AUDIO

RESTORE SETTINGS

DOLBY

AUTO RADIO

MORE INFORMATION

DIGITAL ENCODED

PREFERENCES

SAVE PREFERENCES